On the same wavelength

Lack of communications interoperability among public safety responders can cost lives

BY JOHN MOUNTJOY

It is a common misconception that public safety responders (law enforcement, fire fighters, emergency personnel, etc.) can communicate efficiently and effectively in times of crisis. Popular television shows and movies portray public safety personnel as seamlessly coordinated in their communication and response efforts.

But reality is quite different. Police departments usually communicate with their fire fighting and EMS partners through communication centers, or through radio operators shuffling messages back and forth between agencies or – worse still – agencies using commercial cellular phones to plan and respond to critical incidents and even tactical situations.

With more than 2.5 million public safety first responders in the United States, communications interoperability among the 50,000 local, state and federal agencies is critical to ensuring effective and prompt emergency response.

Need for interoperability

Put simply, public safety communications interoperability is the ability of public safety, fire and rescue, and emergency management personnel to talk seamlessly over one radio and data system without hindrance, and across a wide area, such as a city, county or region.

Public safety communications interop-

erability, far from being a new invention, has been a desire of law enforcement, fire and rescue personnel for the past 40 years. The technology exists to make true interoperability a reality, but there are obstacles – including funding, standards, governance, radio spectrum and cooperation.

During the terrorist attacks of September 11, 2001, the issue of public safety communications interoperability came to a head. As police and fire and rescue personnel swarmed the Twin Towers, communications were either

nonexistent or fragile interoperable systems quickly broke down. While police received the command to evacuate as signs of collapse became apparent, fire and rescue personnel did not. Sixty police officers died in the subsequent collapses, but more than 340 fire and rescue personnel lost their lives. According to a University of New Hampshire ATLAS Project study, non-interoperable communications were at least partially to blame.

Other incidents of non-interoperability are too familiar. During the Oklahoma

City bombing, responding agencies used different radio systems on different frequencies. The only solution was to use runners carrying messages between each of the different command centers. In Littleton, Colorado, the Columbine school shooting showed how a lack of communications interoperability among the 46 responding agencies cost precious response time while activity was still underway in the school.

State responses

In the wake of September 11, states and localities have made significant efforts to address the interoperability problem. While not created by the terrorist attacks, the issue has certainly been elevated in importance.

During the 2002 Winter Olympic Games in Salt Lake City, Utah, state officials used a new statewide public safety communication system known as UCAN (Utah Communications Agency Network). Developed in anticipation of the games, Gov. Mike Leavitt called for its creation in 1993 and it came on line in 1999. During the course of the 17-day games, the system handled 8.5 million transmissions and at its busiest, routed 580,000 transmissions in one 24-hour period. Designed to allow public safety officials across the state to communicate immediately, the system greatly benefited the games and shines as an example for other state-local efforts. UCAN also is an example of a state solving the problem itself, with only 20 percent of the $40 million price tag covered through federal grants.

The issues public safety agencies face regarding interoperability are:

Technology. Radio equipment is expensive, and the new third-generation wireless technology – which provides mobile and satellite-based broadband capabilities – is out of reach for most local agencies, especially when one considers that a modern "walkie-talkie" can cost up to $2,000 each. Different jurisdictions use different equipment and frequencies and often even agencies in the same community have difficulty talking. While devices continue to be miniaturized and civilian technology drops in cost, reliable, rugged and effective communications tools for public safety and emergency responders remain prohibitively expensive.

Spectrum. Radios must operate on specific and clear frequencies and there are a limited number of useable frequencies, most of which are used or reserved for other functions, such as television broadcasts or cellular phones (very high frequency, ultra high frequency, etc.). Spectrum is finite and is an invaluable resource for public safety and emergency responders. One of the most noticeable events is the move to high-definition television. HDTV broadcasts on a different frequency than traditional television. For years, public safety communicators have eyed these television frequencies as ideal and useful, because they blanket a wide area and can accommodate many users. Based on 1997 congressional action, the move to HDTV will not only improve the quality of television entertainment, but will contribute to better public safety communications interoperability.

Standards and governance. No uniform standard for public safety communications exists. Rather, a patchwork of systems, frequencies and protocols exists across the country, between agencies and in different jurisdictions within each state. Before true public safety communications interoperability can succeed, a shared set of standards at the local, state, regional and federal levels must be developed. The problem has been one of autonomy and independence. Communities and states have developed systems that met their standards and needs, but failed to take into account the needs of other communities and agencies in their area. As a result, few systems can talk. To alleviate this gap, leadership and cooperation at various levels of government and between all relevant agencies must take place.

Resources and funding. Money is a primary issue for interoperability. The systems in place around the country today, although inadequate for modern public safety needs, would themselves cost $18 billion to replace, not to mention the enormous cost of purchasing and installing new, modern, third-generation systems. While money is a stumbling block, especially in this time fiscal austerity, creative solutions can help. Local, state and federal agencies can explore cost-sharing arrangements, new contracts and agreements with vendors, interstate and regional cooperation agreements and innovative ways to fund this critical need.

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